

WHAT IS CLAIMED IS:

1 1. An apparatus for processing a block of data  
2 representing at least one symbol, the apparatus comprising:  
3 a jitter compensation filter for performing a  
4 filtering operation on said block of data to generate a  
5 filtered block of data, the jitter compensation filter  
6 having an update input for receiving a filter coefficient  
7 update signal; and  
8 an error calculation module coupled to the update  
9 input of the jitter compensation filter, the error  
10 compensation module generating the filter coefficient  
11 update signal from at least one signal error estimate made  
12 from the filtered block of data output by the jitter  
13 compensation filter.

1 2. The apparatus of claim 1, further comprising:  
2 a control circuit coupled to said error  
3 calculation circuit for determining as a function of said  
4 at least one error estimate, when to output said filtered  
5 block of data.

1 3. The apparatus of claim 1, further comprising:  
2 a channel compensation circuit for receiving said  
3 block of data and performing a channel compensation  
4 operation on at least a portion of said block of data prior  
5 to the block of data being processed by said jitter  
6 compensation filter.

1     9.     The apparatus of claim 1, where the error calculation  
2     module includes:  
3             means for generating a non-decision directed  
4     error value.

1 10. The apparatus of claim 1, further comprising:  
2 an input buffer for storing said block of data  
3 while it is processed multiple times by said jitter  
4 compensation filter.

1 11. The apparatus of claim 10, further comprising:  
2 an output control device for determining when to  
3 output the filtered block of data generated by said jitter  
4 compensation filter.

1 12. The apparatus of claim 11, wherein the output control  
2 device includes:  
3 means for determining when said block of data has  
4 been filtered a fixed number of times by the jitter  
5 compensation filter.

1 13. The apparatus of claim 11,  
2 wherein the output control device includes an  
3 input for receiving the filter coefficient update signal  
4 generated by said error calculation module; and  
5 wherein the jitter compensation filter further  
6 includes means for resetting filter coefficient values to a  
7 set of initial values in response to a reset signal  
8 generated by said output control device.

1 14. A system for processing a multi-tone signal, the  
2 system including:  
3 a channel compensation module for performing a  
4 channel compensation operation on said multi-tone signal;  
5 and



1 19. A method of using a filter having a plurality of tap  
2 weights to reduce the effect of phase jitter on a block of  
3 data representing at least one transmitted symbol, the  
4 method comprising the steps of:

5 i) operating said filter to filter said block of  
6 samples to produce a filtered block of data;

7 ii) determining a signal error from the filtered  
8 block of data;

9 iii) updating at least one of said plurality of  
10 tap weights in said filter as a function of the determined  
11 signal error; and

12 iv) repeating steps i, ii, and iii until a filter  
13 updating stop criterion is satisfied.

1 20. The method of claim 19, further comprising the step  
2 of:

3 supplying the filtered block of data output by  
4 said filter when said filter updating criterion is  
5 satisfied to subsequent receiver circuitry.

1 21. The method of claim 19, wherein said filter updating  
2 stop criterion is the completion of a fixed number of  
3 filtering operations on said block of data.

1 22. The method of claim 21, wherein said filter updating  
2 criterion is a failure in the signal error to exhibit an  
3 improvement over the previous signal error.

1 23. The method of claim 19, wherein said step of  
2 determining a signal error includes generating a decision  
3 directed error value.

26. The method of claim 25, a single channel compensation operation is performed on the block of data in a first period of time; and

step i, ii and iii are performed multiple times in a time period which is equal to or shorter than the first time period.